

SONOSCOUTSETUPGUIDE





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Sonoscout is an intuitive mobile device app* that combines with a wireless data acquisition unit to form a complete and highly portable system for quick grab-and-go recordings and immediate measurement validation.

Measurements are controlled on your Apple® iPad® and a simple user interface lets you mark events and replay time histories promptly after recording.

This Setup Guide will help you get started using your Sonoscout.

Apple support information

To find out more about using apps on your mobile device, check out the following websites:

- www.apple.com/support/ipad/assistant/application
- www.apple.com/support/ipad
- support.apple.com/manuals/ipad
- support.apple.com/manuals/iphone

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* Sonoscout is compatible with iPad 2 or later running iOS 6 or later.

WHAT IS IN SONOSCOUT?

The Sonoscout app is available for download via the App StoreSM or iTunes[®]. To record sound and vibration data with the app, you need to have the following LAN-XI hardware: an input module, a battery module and a wireless LAN frame. You will also need a Sonoscout license.

You can use your pre-existing LAN-XI modules and add Sonoscout License BZ-5950-L and Wireless LAN Frame Type 3660-A-200 or acquire a Sonoscout Kit which includes all of the above inventory in one portable case.



Inside the Sonoscout Kit case

- 1) LAN-XI Battery Module Type 2831-A (including mains charger)
- 2) LAN-XI Input Module (4-, 6- or 12-channel module) with license
- 3) Car Utility Socket Cable AO-0546
- 4) 1-module Wireless LAN Frame Type 3660-A-200
- 5) Compartments for all system accessories, such as a mobile device

The System is pre-configured (including Sonoscout License BZ-5950-L) and ready to use. Simply set up your mobile device and Sonoscout app.

Recommended accessories

Available from Brüel & Kjær

- LAN-XI Notar BZ-7848-A: To record data to an SD card
- Apple iPad UL-1029
- Sound Calibrator Type 4231: To calibrate acoustic transducers
- Calibration Exciter Type 4294: To calibrate vibration transducers
- Sound Quality HATS Type 4100-D: For sound quality testing
- Binaural Recording Headset Type 4965: For real-time audio
- 4-channel CAN-2-Analogue Converter ZH-0700
- Transducers (as required)

Available from third parties

- Suction Mount: To attach iPad to car windscreen
- Cradle for iPad

Both available from RAM Mounts[®] (www.rammount.com)

NOTE: Sonoscout Kits are not delivered with mobile devices.

SETUP BASICS

- 1 Configure your front-end.*



- 2 Connect your transducer.



- 3 Power-up your front-end.



- 4 Install your Sonoscout license.*



- 5 Download the Sonoscout app.



- 6 Set up your Wi-Fi® connection.



- 7 Start the application.



- 8 Make a basic recording.



* This step is not necessary if you have purchased Sonoscout Kit Type 3663-A-040, 3663-A-060 or 3663-B-120.

CONFIGURE YOUR FRONT-END

Front-end configuration is only needed if you purchased your LAN-XI modules separately (not in a Sonoscout Kit).

What do you need?

- 1) LAN-XI Wireless LAN Frame Type 3660-A-200: referred to as the “Frame”
- 2) LAN-XI Battery Module Type 2831-A: referred to as the “Battery”
- 3) LAN-XI Module: referred to as the “Input Module”
- 4) An SD card if using LAN-XI Notar BZ-7848-A

***NOTE:** Type 3660 must have firmware version 2.1.0.190 or later to use the Sonoscout app. All pre-configured systems have the correct firmware installed.*

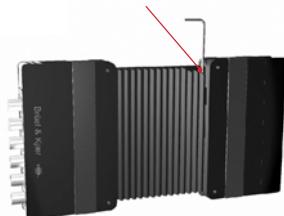
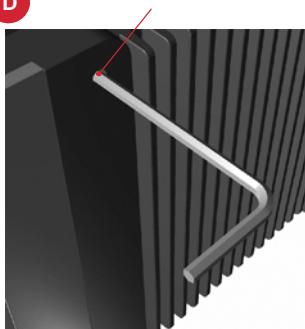
If you are using an earlier firmware version, please see “Updating Front-end Firmware” on page 15 for instructions.

What do you do?

Front-end configuration is a 2-step process:

- Step 1: Connect the Input Module to the Battery*
- Step 2: Connect the Frame

* If you have LAN-XI Notar BZ-7848-A, you may need to insert the SD card before connecting the Frame. Normally, this is done at the factory.

A**B****C****D**

Front-end Configuration Step 1: Connect the Input Module to the Battery

The Battery provides mobile power to the Front-end during recording.

- A) Place the Battery "behind" the Input Module so that the type number text on both of modules is facing the same direction, and the Battery is to the left of the Module.
- B) Remove the hex key from the Input Module.
- C) Using the hex key, push out the four spring-loaded screws around the Input Module.
- D) Fasten the screws to the Battery module and place the hex key back into place.

E**F**

Front-end Configuration Step 2: Connect the Frame

E) If you have LAN-XI Notar BZ-7848-A, ensure that the memory card is inserted in the mini-SD slot at the back of the Input Module.*

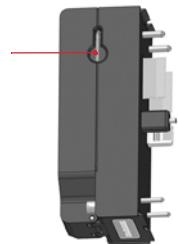
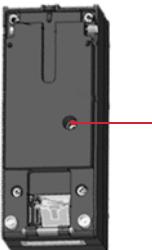
F) Align the prongs on the Frame with the holes at the back of the assembled Input Module and Battery unit. Insert carefully.

Magnets hold the Frame into place. To ensure connection during use, you should screw the Frame securely into place.

G) At the side of the Frame is a hex key, remove it and pull open the Frame.

H) Using the hex key, turn the captive screw in the middle of the Frame until it is tightened.

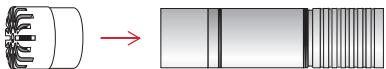
I) Close the Frame and place the hex key back into place.

G**H**

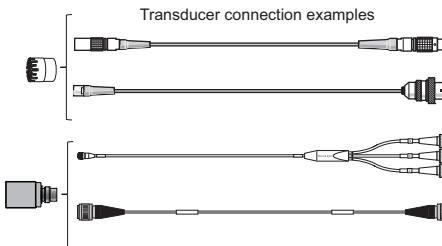
* Use of an SD card is not mandatory. You can also stream recorded data directly to your mobile device's internal storage.

CONNECT YOUR TRANSDUCER

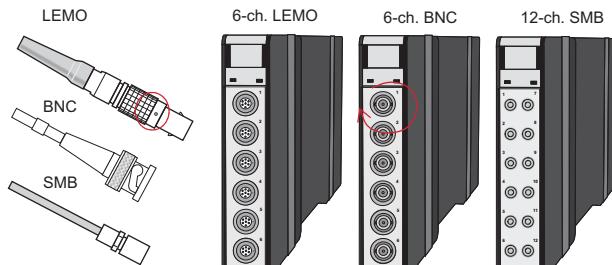
1



2



3



Both microphones and accelerometers, or any other voltage input*, can be used. LEMO, BNC and SMB connections are supported – all depending on your Input Module's front panel.

When connecting the Transducer, do it gently to avoid damaging threads. In the case of microphones, make sure that you do not touch the diaphragm with anything as it is very delicate.

- 1) Assemble your Transducer and Preamplifier, if necessary.
- 2) Connect the relevant cable (plus adaptor, where necessary) to the Transducer.
- 3) Connect the cable to the Front-end. Turn the cable end into place. With LEMO connections, align the red dot at the cable end with the red dot on the Front-end connector.

Front panel connector compatibility

- LAN-XI BNC connectors are compatible with any RG58 5 Ω cable
- LAN-XI LEMO connectors are LEMO 1B – use either Brüel & Kjær's:
 - LEMO 0B to LEMO 1B Connector Cable AO-0419
 - LEMO 1B to LEMO 1B Extension Cable AO-0414
- LAN-XI SMB connectors are compatible with RF/Coax SMB connectors such as Farnell® 1212896/Tyco Electronics® 1-1337475-0

* For CAN data support, use 4-channel CAN to Analogue Converter ZH-0700

POWER-UP YOUR FRONT-END

Power up the Front-end by moving the power switch on the Battery to **Active**. The Input Module's display will initially show an IP address of **0.0.0.0**. LAN-XI modules are pre-configured to use DHCP by default, so you only need to power it on and after about five seconds, the Front-end's built-in DHCP server will provide an IP address.

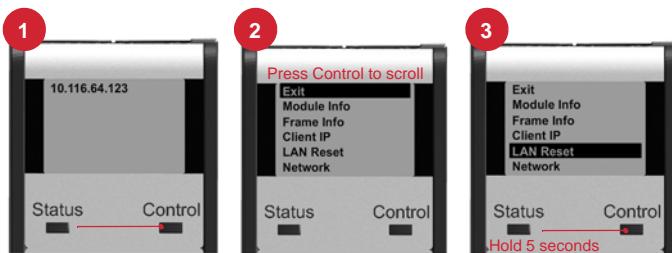


Setting your old module to use DHCP (dynamic IP addressing)

For wireless communication, the Front-end must use dynamic IP addressing using DHCP. If you are using a LAN-XI module that did not come bundled in the Sonoscout Kit, and have a static IP address, you must reset the module to be a DHCP client. To reset the module:

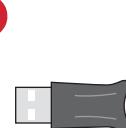
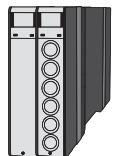
- 1) Press and release the **Control** button on the front of the Input Module to display the menu.
- 2) Scroll down the menu by pressing the button once for each menu item.
- 3) Stop scrolling at **LAN Reset**. Press and hold the **Control** button for 5 seconds.

NOTE: You can also check the module's firmware version using the display menu. Simply scroll down to **Module Info** in the menu and press and hold the **Control** button until the display changes. If the "Ver." is earlier than 2.1.0.190, then you must update the firmware. See page 15 for update instructions.



INSTALL YOUR SONOSCOUT LICENSE

License installation is only needed if you did not purchase a Sonoscout Kit.



What do you need?

- License text file (on USB memory stick from Brüel & Kjær or saved on a PC or mobile device using, for example, Evernote®)
- Wireless device with Web browser (PC or mobile device)
- Password for your Front-end

What do you do?

- 1) Enable your wireless device for wireless network/Wi-Fi connection. From the available wireless/Wi-Fi networks available, select the **BK3660A-xxxxxx*** access point.
- 2) The access point is a secure network using WPA2-PSK and requires a key (password). Enter **3660xxxxxx**.
- 3) Open a Web browser and from the Front-end's display, enter the displayed IP address in the browser's address line (for example: 192.168.1.229) and press <Enter>.
- 4) The Front-end's unique Web page will open. Click **Licenses** in the side menu.
- 5) Open the text file with your license string and copy the string. Paste it into the *License key(s)* box on the Web page and click **Add**.

The following licenses will be added for correct operation of Sonoscout:

- BZ-5950 (Sonoscout)
- BZ-5951 (LAN-XI input channel streaming)
- BZ-7848-A (LAN-XI Notar, if installed)

* xxxxxx are the last six digits in the Front-end's serial number

DOWNLOAD THE SONOSCOUT APP

To download the app, you must be connected to the Internet and have an Apple ID. See your mobile device's user manual or the Apple website (<http://appleid.apple.com>) for information on Apple IDs.

NOTE: The Sonoscout app is free of charge.

Download directly on your mobile device

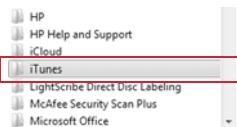
- 1 From your device's Home screen, tap the App Store icon.
- 2 With the App Store open, tap in the Search field and enter Sonoscout.
- 3 Tap **Search** on the keyboard.
- 4 After the Sonoscout app is displayed, tap **FREE**, then tap **INSTALL APP**.



Download via iTunes (for example, on a remote PC)

You can download the app on your PC and then when possible, synchronize your iTunes library over Wi-Fi. This requires that your mobile device is synchronized with iTunes. If it is not, see **Settings > General > iTunes Wi-Fi Sync** on your mobile device for instructions.

- 1 Start iTunes on the PC.
- 2 From the menu bar, select **Store > Home**.
- 3 With the App Store open, enter **Sonoscout** in the Search field.
- 4 After the Sonoscout app is displayed, click **FREE** to start download.
- 5 When your mobile device and PC are on the same Wi-Fi, you can "sync" iTunes.



SET UP THE WI-FI CONNECTION

Connect your mobile device with the Sonoscout System network.

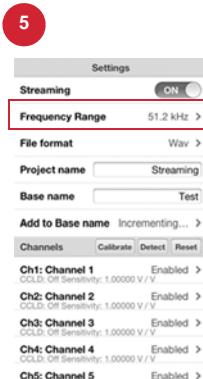
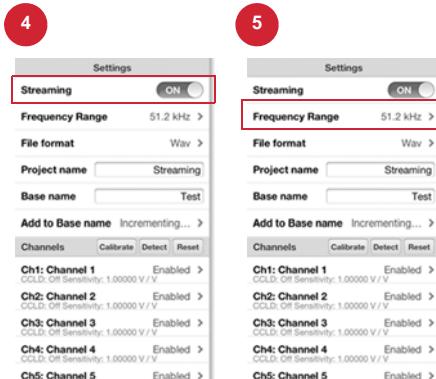
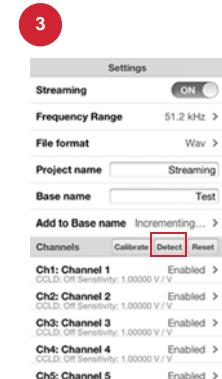
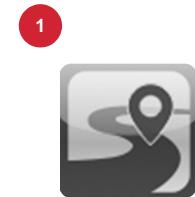


- 1) From your mobile device's Home screen, tap the **Settings** icon.
- 2) Select **Wi-Fi**.
- 3) If Wi-Fi connection is switched off, turn it on by tapping the on/off icon.
- 4) Under *Choose a Network...* all available Wi-Fi networks are listed. Select the Sonoscout System's access point, called **BK3660A-xxxxxx***.
- 5) The access point is a secure network using WPA2-PSK and requires a key (password). Enter **3660xxxxxx***.

NOTE: The Sonoscout System network is a closed, secure network. Once connected, you will not be able to access the Internet.

* xxxxxx is the Front-end's serial number

START USING THE APP



Start the app

- From your Home screen, select the Sonoscout app icon.

The application will start and open in the Recording task – see the bottom of the user interface for the task icon .

- If the app has not detected the Front-end, the Status line will be blank

Set up the hardware and recording

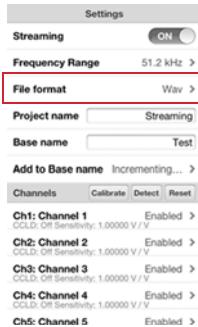
- From the left edge of the screen, swipe toward the centre to open the **Settings** menu to set up the hardware (all Front-end channels will have default settings).
- If you have TEDS transducers connected, tap **Detect** and the app will automatically fill in the details.

NOTE: Tap ? at the top of the user interface and select **Help** for instructions on setting up the hardware manually. Manual setup is necessary with LAN-XI Notar as it does not currently support all TEDS transducers.

- Select the recording file location:
 - Save to the SD card on the Front-end*: tap **Streaming** to Off
 - Save to your mobile device: keep **Streaming** set to On (default)
- Set the **Frequency Range**. Data are sampled at 2.56 times this frequency. The default is 25.6 kHz

* Only available when used with LAN-XI Notar BZ-7848-A

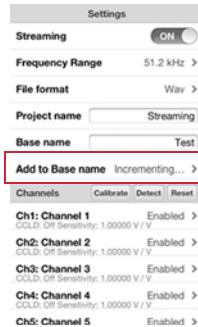
6



7



8



9



10



6) Select the **File format** the recording will be saved as:

- .wav: Wave file (default)
- .hdf: Hierarchical data format
- .pti: PULSE Time file
- .bkc: Brüel & Kjær common file

7) Enter a **Project name** and **Base filename**.

- Project name: The name of the folder where the file will be written. The default is "Streaming".
- Base name: File name used for all recorded files. The default is "Test".

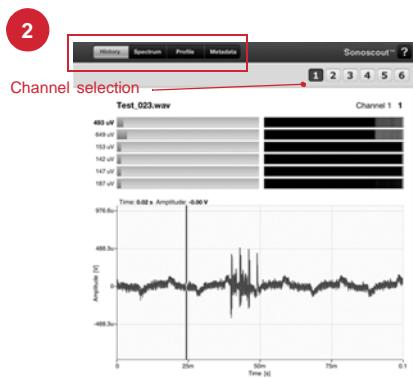
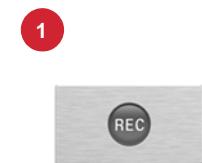
8) In **Add to Base name**, define a file extension. This is appended to the Base name. Select either **Incrementing number** or **Date and Time**.

9) Swipe to close the Settings menu. You are now ready to start a recording.

10) Tap the **Pre-recording** button to initialise the system. There is a short delay whilst the front-end is being configured:

- The enabled channels on the Front-end will light up green
- The time counter will light up (showing 00:00:00.0)
- The Peak Level Meter will display green bars
- The Level History display will initiate
- If you are streaming data, data streaming starts immediately

MAKE A QUICK RECORDING



Tap to pause



Tap to restart



- 1) Tap the **Rec** button. The button flashes and recording starts immediately.
- 2) To view real-time displays, use the sub-task tabs at the top of the interface.
 - For a spectrum display, tap the **Spectrum** tab and select the channel.
 - For a RPM profile display, tap the **Profile** tab and select the channel.
 - For a time history display, tap the **History** tab and select the channel.
- 3) To pause the recording, tap the **Rec** button. The button will change to a pause icon. To restart, tap the **Pause** icon. The recording will continue and the data will be appended to the same file.
- 4) To stop the recording, tap the **Stop** button. There will be a short delay before file writing is complete.
- 5) If you are streaming, data streaming will continue until you tap the **Stop Streaming** button.

For detailed instructions on use of the app, including user interface descriptions, in-depth setup instructions and file handling and display tips, simply tap **?** at the top of the screen and select **Help**.

UPDATING FRONT-END FIRMWARE

Brüel & Kjær continually updates LAN-XI firmware and provides the updates in zip files on the Brüel & Kjær website (www.bksv.com). Once the file is downloaded from the Internet, install the update via the Front-end's home page.

To download and install firmware updates, you must use a PC (Apple Safari® and iOS systems do not support zip files).

Step 1: Download the Firmware Update

- A) Go to www.bksv.com.
- B) Select **Service > User Support > Downloads**.
- C) In the Step 1 box, select **LAN-XI**.
- D) In the Step 2 box, select **LAN-XI Software Updates**.
- E) Click the latest firmware filename and **Save** the zip file to any location on your PC.

Step 2: Install the Firmware Update

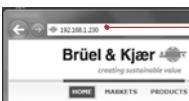
- F) Connect the PC to the Front-end's wireless access point.
- G) Open a Web browser and enter the IP address from the Front-end's display into the address line.
- H) On your Front-end's home page, click **Firmware**.
- I) Click **Browse...** and navigate to the saved file.
- J) Click **Start update**.

USING THE FRONT-END HOME PAGE

1



2



Each LAN-XI module and frame has its own home page containing information about the module, including configuration, calibration history, self-test, log file, etc.

To access the home page:

- 1) With your mobile device connected to the Front-end's access point, open a Web browser.
- 2) Enter the IP address shown in the Front-end's display into the browser's address line, (for example: 192.168.1.229).

The screenshot shows the 'About this module' section of the LAN-XI module's home page. The left sidebar includes links for Main, Network, Synchronization, Status, and Firmware. The main content area displays detailed module information:

About this module	
Module type	3160-A-042
Description	Generator, 4/2-ch. Input/Output Module LAN-XI 51.2kHz (Mic, CCLED, V)
Configuration	Stand-alone
Serial number	10104
Front panel ID	UL1400-060, SN:100169
Hostname	BK3160-010104
IP address	10.116.130.95
MAC address	00:80:D4:00:81:9D
Hardware version	0.8
Mechanical version	1.0
Firmware version	1.4.0-311
Location	Instrumentation
Contact	Click here to set
Module status	Ready

Below the table are three buttons: 'Reboot module', 'Turn on module indicator', and 'Open recorder application'. To the right of the table is a graphic of the LAN-XI module with its various ports labeled.

The **Main** page looks similar to the one shown here with the Front-end's general settings. The two links on the page can be set as needed:

- **Location:** Where the module is physically located
- **Contact:** Who to contact, either an email address or phone number

The buttons at the bottom provide the following functionality:

- **Reboot module:** Reboot the module to factory settings
- **Turn on module indicator:** Enables the module's LED indicators to light up in the case of multi-module configurations (not relevant for single stand-alone modules)
- **Open recorder application:** Use this button to control a recording using LAN-XI Notar and/or access the data stored on the SD card

1

Main

Network

Synchronization

Status

Firmware

Network settings

Configuration: DHCP Static

Hostname: BX3160-010104

IP address: 10.116.130.95

Netmask: 255.255.0.0

Gateway: 10.116.8.12

MAC address: 00:80:DA:00:81:90

DHCP

Lease obtained: Tue, 1 Dec 2009 13:18:14 UTC
Lease expires: Sat, 5 Dec 2009 13:18:14 UTC

Renew **Release**

2

Main

Network

Synchronization

Status

Firmware

Synchronization

Synchronization method: Module standby

Module standby: Frame stand-alone/
Frame PTP master/
Frame DAe master/
Frame DAe slave

PTP

Current PTP time: 1970-01-01 00:07:
Subdomain name:
Current grandmaster: 00:80:DA:00:B1:19
Grandmaster traceability to UTC CPT
Parent clock: 00:80:DA:00:B1:19
Preferred master: No
Sync interval: 1.0 s
Mode: Undefined
Slave Offset to Master: 0.0 ns
Slave time standard deviation: 0.0 ns

LAN Switch

Switch method: Unknown
Switch latency: 0

DAe

Subdomain:
Master/Slave: Not in use

- 1) The **Network** page allows you to set a static IP address (not recommended with wireless connection) or obtain a new DHCP IP address.

- 2) The **Synchronization** page shows the current synchronization method in use (not relevant for single stand-alone modules).

- 3) The **Status** page shows the status of the Front-end, including self-test status, temperature, power, etc.

- 4) The **Firmware** page shows the Front-end's current firmware and provides detailed information on firmware updates.

NOTE: It is not possible to download or open files such as firmware updates using Apple Safari (the default browser on iPad).

3

Main

Network

Synchronization

Status

Firmware

Power-on selftest

Power-on selftest succeeded.

Client status

Not connected to any client

Last Client	Module
Last User	Module
Last Application	Notar

Temperature

Module temperature 41.0 °C / 105.8 °F.

Power status

Module power sources: Active

DC input: Power over ethernet

Frame power sources	Available	Not available
All power sources	Not available	
DC input	Not available	
Battery slot 10	Not available	
Battery slot 11	Not available	

4

Main

Network

Synchronization

Status

Firmware

Update firmware

Firmware file (*.aif):

Progress: 0 % Status: Waiting to receive firmware file

This module requires firmware version 0.5.6.166 or later. The current version is 0.5.6.166.

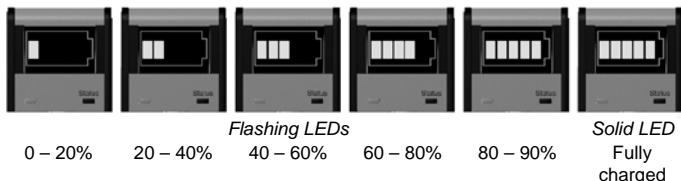
Help

To update the firmware in this module:

1. Use the Browse button to locate a suitable firmware file (.aif).
2. Click the Upload button to start the update process.
3. When the update process has completed, the module will reboot.

The default location for firmware files installed with Pulse is:
C:/Program Files/Bruei and Kjaer/PULSE/Updates/Promupdate

CHARGING YOUR BATTERY



To check the charge level, press the Status button on the Battery. The status indicators are as shown to the left. Each LED bar is equal to approximately 1.5 hours operation.

There are two ways you can charge the Battery:

- DC charge: using Battery Charger ZG-0858. To utilize in-vehicle cigarette lighters, use the included Car Utility Socket Cable AO-0546
- AC charge: using Battery Charger ZG-0469* (input range: 100 – 240 V AC, 50 – 60 Hz)

With either option, it takes approximately three hours for the Battery to be fully charged.

- 1) Ensure the Battery's power switch is in the Active position.
- 2) Plug the charge cable into the Frame's charge input connector.



* Included with the Battery

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Brüel & Kjær



HEADQUARTERS: Brüel & Kjær Sound & Vibration Measurement A/S DK-2850 Nærum · Denmark
Telephone: +45 7741 2000 · Fax: +45 4580 1405 · www.bksv.com · info@bksv.com

Local representatives and service organisations worldwide

